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JP 2001-341453A

DETAILED DESCRIPTION

[Detailed Description of the Invention]

[0001]

[Field of the Invention] This invention forms the porous layer of ink permeability on the extended thermoplastics film (film), gives heat punching which followed the film at the picture signal, and relates to the master for sensible-heat mimeograph printing and its manufacture approach for leaching ink and preparing an image in paper from punching. It is characterized by for the porous layer of the above-mentioned ink permeability carrying out spreading desiccation of the fluid, and forming it in more detail.

[0002]

[Description of the Prior Art] The master which prepared the stick prevention layer for stick prevention [on lamination and a film front face] with a thermal head with adhesives is known by the film in porous tissue paper, a nonwoven sheet, etc. as an ink permeability base material. The master which prepared in practice the stick prevention layer which becomes lamination and a film front face from a silicone oil etc. with adhesives about a film in what mixed hemp fiber, a synthetic fiber, wood fiber, etc. as a porous base material is used widely. However, there were the following troubles in such a conventional master.

(1) Adhesives pile up the part with which fiber lapped, and the part which a film touches in the shape of [of a bird] a web in large quantities, and punching by the thermal head of the part becomes is hard to be performed. Moreover, the part bars passage of ink and printing nonuniformity occurs.

(2) Fiber itself bars passage of ink and printing nonuniformity occurs.

(3) A porous base material etc. is expensive, and the loss by lamination also has it, and it becomes expensive [a master]. [large]

(4) If the printed paper laps, the set-off adhering to the rear face of the paper in which ink lapped on it will occur.

[0003] Some masters are proposed in consideration of such a point. For example, the ink permeability base material which used super-thin fiber with a fineness of 1 denier or less is indicated by JP,3-193445,A. According to this, the trouble of the above (2) and (4) is solved, but (1) or (3) trouble is left behind. The master which does not use a base material and which consists only of a film substantially is indicated by JP,54-33117,A, according to this, all the aforementioned troubles are solved, but the new problem of the fault of the conveyance nature which comes on the other hand from the weakness of the chewiness of a master has arisen. As a solution means of these problems, the master which applied the fluid containing resin, its good solvent, and a poor solvent to the film, dried, and formed the porous layer is indicated by JP,10-24667,A by an invention-in-this-application person etc. The porous film which resin deposits and dries this mixed liquor in a desiccation process by the increment in the relative poor solvent by evaporation of that good solvent, concentration of liquid, etc., and consists of a luffa-like three-dimensions network structure object is formed on a film. The master in which the porous layer from which the fluid which similarly made the subject the W/O (oil Nakamizu drop) mold emulsion at invention given in the specification of December 4, Heisei 9 application by an invention-in-this-application person etc. was applied on the film, it dried, and the waterdrop part became a hole was formed is indicated. Although the master which applied these fluids, dried and formed the porous layer is superior to the master known till then and a problem was hardly generated, when solid platemarking of a large area etc. was performed, it was not able to prevent completely sag Siwa's occurring, and a printing image's deforming, or contracting and generating an abnormality image.

[0004] The big factor which sag Siwa generates is in the biaxial extension for giving heat sensitivity to a film. Although it curtains and is hard to generate Siwa with the film which does not have extension, of course, heat sensitivity is small and it is impractical. A part of potential stress generated in biaxial extension under the effect of the heat of platemarking in the part near the heat punching of the film currently extended is released, stress occurs, and since the dynamic balance for a part for a punch station and the non-punch station which are not influenced of heat collapses and shrinkage is produced only near a punch station part, what sag Siwa generates is presumed. Like ****,

it generates by the variation of tolerance of a platemaking part and a non-engraving part, and especially near [the] a boundary is remarkable, and expands and contracts, and sag Siwa turns into wave-like sag Siwa. When there was the Japanese paper's well-known base material in contact with a film, the base material was pressing down generating of the contraction of a film. However, the master of the capacity to which carry out spreading desiccation of the fluid on a film, and it makes it come to form an ink permeability porous layer in was inadequate, when coating weight of a porous layer was enlarged so that this capacity was given on the other hand, ink passage was checked and image quality deteriorated.

[0005] Although the proposal which gives tension fixed in the conveyance direction of opposite *Perilla frutescens* (L.) Britton var. *crispa* (Thunb.) Decne. to a film at the platemaking time is indicated by JP,6-198833,A for solution of sag Siwa of a master which consists only of a film, the proper range is narrow, proper tension changes with punching area, the location of punching, and ambient temperature, and effectiveness is a little inadequate. For example, when ambient temperature went up by suitable tension on some conditions, it was extended by the amount of punch station from a part for a non-punch station, and sag Siwa generated it. Moreover, it was not perfect although the effectiveness of extent which is the platemaking of only the alphabetic character which whose platemaking area is small or does not have a solid image although the platemaking equipment which has the press roller which forces the master immediately after platemaking on a platen roller is proposed in the patent No. 2856632 printing official report was shown.

[0006]

[Problem(s) to be Solved by the Invention] This invention was made in view of the actual condition of the above conventional techniques, and applies the fluid of thermoplastics. The problem of sag Siwa generating which occurs when carrying out heat platemaking of the master which dried and formed the porous layer using a laser beam, a thermal head, etc. is solved. The printing image of the outstanding image quality is obtained and it aims at offering the manufacture approach of the master for sensible-heat mimeograph printing (master) which curtains at the time of heat platemaking and Siwa does not generate, and the master for sensible-heat mimeograph printing (master).

[0007]

[Means for Solving the Problem] As a result of [which is generated by contraction at the heat punching time of the master which was made to carry out spreading desiccation of the fluid, and formed the porous layer on the extended film] curtaining and examining Siwa etc., this invention person etc. checked that this sag Siwa did not occur, when the glass transition temperature (Tg) of the resin which constitutes a porous layer was 80 degrees C or more. Although the mechanism is not clear, the heat impressed to the porous layer and the opposite side of a film on the occasion of punching influences a porous layer, and the thing Tg softens resin 80 degrees C or less, and it becomes impossible to be able to finish suppressing deformation of a film is presumed. This invention tends to offer the following master for sensible-heat mimeograph printing and its following manufacture approach, in order to solve the above-mentioned technical problem based on the above-mentioned technical knowledge. The 1st of this invention is in the master for sensible-heat mimeograph printing characterized by for glass transition temperature (Tg) carrying out spreading desiccation of the resin fluid 80 degrees C or more, and an ink permeability porous layer making it form on said film in the master for sensible-heat mimeograph printing which has an ink permeability porous layer on the extended thermoplastics film. The 2nd of this invention has resin which constitutes an ink permeability porous layer in the master for sensible-heat mimeograph printing of the above 1st characterized by being a polyvinyl acetal and/or a polyvinyl formal. The 3rd has the glass transition temperature (Tg) of this invention in the master for sensible-heat mimeograph printing of the above 1-2 which is those in which a resin fluid 80 degrees C or more contains a cross linking agent. The 4th of this invention is in the master for sensible-heat mimeograph printing of the above 1-3 characterized by preparing a functional thin film between the extended thermoplastics film and an ink permeability porous layer. The 5th of this invention is in the manufacture approach of the master for sensible-heat mimeograph printing characterized by carrying out spreading desiccation and forming an ink permeability porous layer on the thermoplastics film with which Tg was extended in the solvent in the waterdrop (W/O) mold emulsion in Abura which resin 80 degrees C or more is dissolving, or the extended thermoplastics film which prepared the functional thin film. The 6th is in the manufacture approach of the master for sensible-heat mimeograph printing characterized by for Tg of this invention carrying out spreading desiccation, and forming an ink permeability porous layer on the thermoplastics film extended in the fluid which dissolves resin 80 degrees C or more in the good solvent to this resin, and comes to add the poor solvent of this resin in this resin solution further, or the thermoplastics film which prepared the functional thin film.

[0008]

[Embodiment of the Invention] The operation gestalt of this invention is shown below and this invention is concretely explained to it. Though natural, the smaller one of the variation of tolerance of the platemaking part at the time of heat platemaking and a non-engraving part is desirable, and the master for sensible-heat mimeograph printing of this

invention is still more preferably [0.5% or less of] desirable 1% or less preferably. Therefore, the technique in which it is well-known in addition to the requirements for a configuration of this invention may be adopted. For example, it is desirable to give fixed pull strength in the direction of vertical scanning to an original edition film, or for the direction of the platemaking front of an original edition film or the aforementioned pull strength to give pull strength also in the direction of platemaking back of an original edition film, or to use a thing means together as indicated by JP.6-198833.A.

[0009] The ink permeability porous layer of the master for sensible-heat mimeograph printing of this invention can be prepared by applying various resin solutions, an emulsion, etc. to a film, and drying. As resin which forms an ink permeability porous layer, it is required for Tg (glass transition temperature) to be a thing 80 degrees C or more. In order that Tg may certain below 80 degrees C and may lose Siwa, coating weight becomes large and is not desirable in respect of image quality, cost, and environmental preservation. Tg of a porous layer as resin 80 degrees C or more, for example Polystyrene and its copolymer (it is below the same), A derivative (it is below the same), polyvinyl benzene, a polyvinyl pyrrolidone, Polyvinyl carbazol, poly allyl compound benzene, polyvinyl alcohol, A polyvinyl formal, polyvinyl acetate, a polyvinyl chloride, a polyvinyl acetal, A polyacrylonitrile, polyacrylic acid, polyacrylate, polymethylmethacrylate, Polyethyl methacrylate, polypropylene pill methacrylate, poly isopropyl methacrylate, It is poly tertiary butyl methacrylate, polyethylene terephthalate, a polycarbonate, a polyamide, ethyl cellulose, cellulose acetate, silicon resin, etc., and these may mix and use two or more sorts. A polyvinyl formal and a polyvinyl acetal are desirable especially especially in respect of an adhesive property with a film etc. in image quality and the ease of carrying out of spreading. However, Tg (glass transition temperature) is restricted also for the resin of the name with same being applied to this invention to a thing 80 degrees C or more from the field of molecular weight and structure. Tg of all the resin indicated by JP,10-24667,A by an invention-in-this-application person etc. is a less than 80-degree C thing. Moreover, spreading desiccation of what mixed various cross linking agents to the coating liquid for porous-layer formation may be carried out, and a bridge may be constructed. As a cross linking agent, a melamine compound, a urea compound, a phenolic compound, An epoxy compound, Isocyanate compound (as poly isocyanate) **, 2, 4-tolylene diisocyanate, 2, 6-tolylene diisocyanate Diphenylmethane-4 and 4'-diisocyanate Polymethylene polyphenylpolyisocyanate Hexamethylene Aldehyde compounds, such as diisocyanate(s) and these denaturation objects, and mixture, etc. are used. Bridge formation accelerators (example: melamine compound chlorination ammonium, a stannic chloride, etc.) can also be added.

[0010] In order to change the property of a porous layer, various inorganic ones and an organic pigment can be added. The diameter at the time of converting especially a desirable thing into a circle is [0.1-5 micrometers and die length] 3 or more time fibrous material or tabular matter 1mm or less of a diameter. When a diameter is smaller than 0.1 micrometers, distribution and handling are troublesome and a price is also high. Moreover, if larger than 5 micrometers, the smoothness of a film plane will worsen. If the effectiveness which will certain if the length is smaller than 3 times of a diameter, and prevents Siwa is small and larger than 1mm, it will be hard coming to distribute. For example, talc, a kaolin, a silica, silica gel, colloidal silica, A calcium carbonate, a magnesium carbonate, a calcium hydroxide, a zinc oxide, A titanium dioxide, a barium sulfate, a magnesium hydroxide, an aluminum hydroxide, Zinc sulfide, zinc carbonate, a zeolite, an alumina, alumina sol, carbon black, Sepiolite (magnesium silicate), a magnesium hydroxide, boric-acid aluminum, Potassium titanate, wollastonite, zonolite, gypsum-fibrous fiber, a non-oxide system needlelike whisker, An oxide system whisker, a multiple oxide system whisker, a carbon fiber, a glass fiber, The thing suitable for conditions is chosen from organic pigments, such as the inorganic pigment of **, polymethylmethacrylate, polystyrene, polyester, a polycarbonate, polyethylene, polypropylene, amino resin, styrene-methacrylic resin, polyester fiber, and an acrylic fiber, etc. There is especially no constraint in the addition to the resin of a pigment. If the pigment 10 section is exceeded to the resin 1 weight section, cautions are required so that a pigment is omitted from a spreading side, and a pigment may not be omitted, since it may become a non-punching stripe and may appear in a film in contact with the heating element of a thermal head. However, it does not pass over the above instantiation ingredient to instantiation, but if expected effectiveness can be done so even if they are ingredients other than this, it can use the ingredient of arbitration.

[0011] In the W/O emulsion by this invention, if the solvent with which the boiling point contains a solvent 130 degrees C or less 50% of the weight or more is not used, formation of the desirable porous film will become difficult. In this invention, a methylene chloride, chloroform, ethyl acetate, methyl acetate, diethylether, a carbon tetrachloride, a cyclohexane, a hexane, a pentane, benzene, MEK, toluene, etc. are raised as an example of the solvent used suitable for formation of a W/O emulsion. If the drainage system of an emulsion is made to thicken rather than pure water, an emulsion will be stabilized and it will be hard coming to break. Viscosity is the solution temperature at the time of spreading, and is ten to 500 centipoise. If the effectiveness of emulsion stabilization is small when smaller than 10 centipoises, and 500 centipoise is exceeded, desiccation will become slow and productive efficiency will worsen. As this thickening means, addition of a water-soluble compound is used suitably. As an example of the water-soluble

above-mentioned compound, polyvinyl alcohol, a carboxymethyl cellulose, hydroxyethyl cellulose, hydroxypropylcellulose, polyacrylic acid, a polyethylene glycol, a polyvinyl pyrrolidone, etc. are used. Adjustment of W/O emulsion coating liquid adds the aqueous phase which dissolved said thickener of the specified quantity in water if needed, dissolving a pigment, resin, and a surfactant in a solvent, distributing as an oil phase, first, and ****(ing) this. An antistatic agent, a stick inhibitor (although the spreading side of a porous layer is located in the field and the opposite side where a thermal head touches, when it is made a roll, both sides may touch, and a stick inhibitor may shift and function on a film plane) Moreover, the effectiveness which prevents the shift from the field where a thermal head touches can also use together a certain antiseptics, a defoaming agent, a modifier, etc.

[0012] In the fluid which makes W/O emulsion a subject, on a film, it applies on direct or a film, it dries, and the porous film formed of the emulsion of this invention is formed, it becomes the hole (a pigment etc. may exist) which ink passes mainly after the part of water drying, and the resin in a solvent (additives, such as a filler and an emulsifier, may be contained) serves as the structure. If the fluid of this invention is applied to a film, the thin film of the resin contained in coating liquid may be formed in the interface of a film and a porous layer. Although we are anxious about the bad influence to the punching heat sensitivity by a thermal head etc., it has become clear that it hardly influences in practice. This is presumed to be the reasons with main the thickness of a thin film being small compared with the thickness of a film. Although it is unknown, it is presumed to be what solvents decrease in number gradually from the resin solution which forms the continuous phase which had wet the film plane uniformly, and forms a resin thin film as it is of what kind of mechanism this thin film is formed as the solvent and water of resin evaporate from a front face at the time of desiccation. Spreading on a film is performed by the coater which has heads, such as a well-known die, a roll, a blade, WAIYABA, and gravure. In the case of biaxial extension polyester with a thickness of 2 micrometers, coating weight is usually after desiccation practically, and 1-15g/m², and the range in the case of being applied more mostly are 3 - 10 g/m². When smaller than 1 g/m², effectiveness is small, and if larger than 15 g/m², it is not desirable in respect of image quality, cost, etc. Said coverage curtains in coating weight smaller than a "soft" ingredient with the "hard" high ingredient of Tg, and is effective in the Siwa prevention.

[0013] Although the example of an emulsion was raised as a fluid applied to a film, if it has the description of a fluid, by this invention, it will not independently be limited to the above emulsions. For example, although the master which applied the fluid containing resin, its good solvent, and a poor solvent to the film, dried to JP, 10-24667, A, and formed the porous layer in it is indicated, the porous layer of the master of this invention can be formed also by this manufacture approach. In this manufacture approach, the porous film which resin deposits and dries the aforementioned mixed liquor in a desiccation process by the increment in the relative poor solvent by evaporation of that good solvent, concentration of liquid, etc., and consists of a network structure object of three dimensions is formed on a film (the depositing method). As a good solvent used for this depositing method, a thing 100 degrees C or less can use [the boiling points, such as methyl alcohol, ethyl alcohol isopropyl alcohol, and a methyl ethyl ketone,] suitably. Moreover, as a poor solvent used by this manufacture approach, the solubility over resin is low, and water is the most suitable, although it is not limited especially if the boiling point is higher than said good solvent.

[0014] Polyester with a thickness of 0.5-5 micrometers extended as a thermoplastics film is used suitably. If smaller than 0.5 micrometers, porous-layer processing and conveyance with a printing machine will be difficult, and the cost per area will also become high. Heat sensitivity will become small if 5 micrometers is exceeded. Moreover, various biodegradable polymers, for example, a cellulose, protein, natural rubber, microorganism polyester, microorganism polysaccharide, aliphatic series polyester, a poly glucol acid, polylactic acid, cyclic ether polyester, methacrylic ester resin, a polyether, polyvinyl alcohol, etc. may be used from the position of environmental preservation.

[0015] The heat energy of a thermal head and laser is used as a puncher stage. In the case of a thermal head, it is desirable to process stick inhibitors, such as a well-known silicon compound, a fluorine compound, a wax, and a fatty acid, into the film plane which a thermal head touches with the antistatic agent etc. if needed. In the case of laser, in order that a film may change laser energy into heat efficiently, it is desirable to process the laser radiation side [of a film] and/or opposite side side by the matter which has absorption in the wavelength region. When wavelength is the laser which is 600-1200nm, coloring matter, such as cyanine dye, phthalocyanine dye, and styryl coloring matter, carbon black, graphite, metallic carbide, ferrous oxide, black titanium oxide, magnetic-substance powder, etc. can be used with binders, such as resin, if needed. Especially carbon black is effective.

[0016] This invention may prepare a functional thin layer for the purpose of amelioration of an adhesive property and stiffness etc. between a film and an ink permeability porous layer. As a resin ingredient of the functional thin layer prepared on a film, polyamides, such as vinyl system resin [like], such as polyester resin, PORITERU resin, polyurethane resin, polyvinyl acetate, a polyvinyl butyral, a vinyl chloride-vinyl acetate copolymer, a vinyl chloride-vinylidene-chloride copolymer, a vinyl chloride-acrylonitrile copolymer, and a styrene-acrylonitrile copolymer, polybutylene, and nylon, polyphenylene oxide, acrylic ester (meta), polycarbonates, these copolymers, mixture, a

denaturation object, etc. are used, for example. Polyester polyol and polyether polyol are desirable also especially in these resin. It is the mixture of the polyester polyol and polyether polyol whose softening temperature is 60 degrees C - 150 degrees C still more preferably, and the poly isocyanate. What is necessary is just to choose freely according to a need property, although the range of OH/NCO is 1 / 0.1 - 1/20 here. Furthermore, in the range which does not check the effectiveness of this invention, various fillers, an antistatic agent, a stick inhibitor, a surfactant, antiseptics, a defoaming agent, a modifier, etc. can be used together in said functional thin layer. The thickness after desiccation of a functional thin layer has 0.01 micrometers or more and desirable 0.8 micrometers or less, and 0.03 more micrometers or more and its 0.2 micrometers or less are more desirable. If an adhesive property, chewiness, and the improvement effect over curl are small when the thickness after desiccation of a thin layer is smaller than 0.01 micrometers, and 0.8 micrometers is exceeded, it will have a bad influence on heat punching sensibility. The ingredient of a thin layer and the thickness after desiccation are determined in some experiments. That is, in consideration of the target adhesive property, image quality, etc., it is made the desiccation coating weight (thickness) of a suitable thin layer. When measurement of thickness is directly difficult, it asks by count from weight and specific gravity.

[0017] Platemaking and printing quality are PRIORIT. VT It examined using 3820 systems.

Platemaking dimension difference: The 20x20cm solid image was engraved, and the dimension was measured.

Sag Siwa: Thing O which is not accepted, thing ** accepted slightly, and severe thing x show.

Punching sensibility: By the thermal head, although punched, ** shows O and the thing to which the diameter of punching becomes small partially, and the film part of a master shows the object which is not punched partially by x for what is completely punched normally.

Printing concentration: Measure the printing image of the 20th sheet with the Macbeth concentration meter.

image quality: -- what is [what / observes printed matter with the naked eye, and is superior to the present master (the Ricoh Co., Ltd. make, VT-2 master)] inferior to ** and the present master in a thing equivalent to O and the present master -- x -- it is come out and shown.

[0018]

[Example] Hereafter, the example of this invention is shown. In addition, the amount of components of following each example is the superposition section.

[0019]

Example 1 oil phase Polyvinyl acetal (the DENKI KAGAKU KOGYO K.K. make, 5000-A.Tg93 degree C) The 2.5 weight sections Talc 1.0 Ethyl acetate 30.0 Sorbitan monooleate (the Toho Chemical Co., Ltd. make, Sol Bon S80) 0.15 aqueous phase Hydroxyethyl cellulose 0.2 Water The 18.0 above-mentioned aqueous phase was added to the oil phase, and the emulsion of distribution and a W/O mold was further created using the high-speed homomixer. In the ambient atmosphere of 25-degree-C50%RH, spreading desiccation of this was carried out so that desiccation posterior matter amount of adhesion might be set to 6.0g/m² in a die coating machine on biaxial extension polyester film with a thickness of 2.0 micrometers, and the porous layer was formed. The spreading rate was a part for 10m/, and drying temperature was 60 degrees C. The mixture of silicon and the Nonion system antistatic agent was applied to having formed the porous layer of a film, and an opposite side so that the coating weight after desiccation might be set to 0.05g/m², and the master was obtained.

[0020] In example 2 example 1, the mixture of the S lek KS[by Sekisui Chemical Co., Ltd.]-1 (more than Tg110 degree C) 1.25 weight section and the S lek KS-3Z(more than Tg110 degree C) 1.25 weight section was used as a polyvinyl acetal, and also the desiccation posterior matter amount of adhesion of a porous layer obtained the master of 5.7g/m² like the example 1.

[0021] In example 3 example 1, sepiolite was used instead of talc. Desiccation posterior matter amount of adhesion is 5.4 g/m². Others are the same as an example 1.

[0022] On biaxial extension polyester film with an example 4 thickness of 2.0 micrometers, spreading desiccation of the W/O emulsion for porous-layer formation shown below was carried out, and also the desiccation posterior matter amount of adhesion of a porous layer obtained the master of 6.2g/m² like the example 1.

Oil phase 1 polyvinyl-acetal resin S lek KS-1 (the Sekisui Chemical Co., Ltd. make and more than Tg110 degree C) The 1.0 weight sections S lek KS-3Z(Sekisui Chemical Co., Ltd. make and more than Tg110 degree C) 1.0 Talc 1.0 Ethyl acetate 15.0 Poly isocyanate 0.125 oil-phase 2 polyvinyl-acetal resin S lek KS-1 (Sekisui Chemical Co., Ltd. make and more than Tg110 degree C) 0.25 weight section S lek KS-3Z(Sekisui Chemical Co., Ltd. make and more than Tg110 degree C) 0.25 ethyl acetate 15.0 Sorbitan sesquileate 0.1 Ether denaturation silicone oil 0.1 aqueous phase Hydroxyethyl cellulose 1% water solution The distributed dissolution of 20.0 oil phases 1 and the oil phase 2 is carried out respectively, stirring to an oil phase 2, it adds little by little and the aqueous phase is emulsified. It added stirring this emulsified liquid to an oil phase 1, and the W/O emulsion for porous-layer formation was obtained.

[0023] On biaxial extension polyester film with an example 5 thickness of 2.0 micrometers, the coating weight after

the desiccation shown below prepared 0.02g/the functional thin layer of m2, and also the desiccation posterior matter amount of adhesion of a porous layer obtained the master of 5.7 g/m2 like the example 2.

Functional thin layer formula Polyester polyol 30% ethyl-acetate solution (the Toyobo Co., Ltd. make, Byron 50AS) The 3.0 weight sections Poly isocyanate 75% ethyl-acetate solution 0.3 Ethyl acetate 10 Toluene 102.7 [0024] The porous layer shown below was prepared on the functional thin layer with a thickness of 2.0 micrometers of biaxial extension polyester film which has the same functional thin layer as example 6 example 5, and also the coating weight after desiccation of a porous layer obtained the master of 6.2g/m2 like the example 1.

Porous-layer formula polyvinyl-acetal resin S lek KS-1 (Sekisui Chemical Co., Ltd. make and more than Tg110 degree C) 1.25 weight section S lek KS-3Z(Sekisui Chemical Co., Ltd. make and more than Tg110 degree C) 1.25 Potassium titanate (the Otsuka Pharmaceutical make, TISMO-D D) 1.25 Ethyl alcohol 19.1 Water 2.1 [0025] In example of comparison 1 example 1, the DENKI KAGAKU KOGYO K.K. make and 3000-KTg67 degree C were used as a polyvinyl acetal. The desiccation posterior matter amount of adhesion of 7.9 g/m2 and others is the same as that of an example 1.

It is the same as the example 1 of example of comparison 2 comparison. However, desiccation posterior matter amount of adhesion is 18.4 g/m2.

[0026]

[Table 1]

評価結果

	ベタ製版部 寸法差(%)	たるみ シワ	穿孔 感度	印刷濃度	画 質	裏 移り
実施例 1	-0.3	○	○	0.99	○	○
実施例 2	-0.1	○	○	1.02	○	○
実施例 3	-0.05	○	○	0.96	○	○
実施例 4	-0.05	○	○	0.98	○	○
実施例 5	-0.04	○	○	1.05	○	○
実施例 6	-0.04	○	○	1.14	○	○
比較例 1	-1.8	×	○	0.95	×	○
比較例 2	-0.5	△	○	0.63	×	○

Like the above, in the example 1 of a comparison, sag Siwa where Tg originates in a low thing occurred, and distortion arose in the image. Although coating weight of a porous layer was enlarged in the example 2 of a comparison, ink passage was checked and many flakes occurred in the image. Moreover, in the example 2 of a comparison, when it was with the 140-degree C xylene of the boiling point, the good porous film was not formed. Image quality and a set-off were also good, without having curtailed in the examples 1-6 and also producing Siwa. [0027]

[Effect of the Invention] The manufacture approach of the master which sag Siwa made into the purpose cannot generate easily, and this master was offered holding the outstanding image quality and few outstanding set-off properties according to this invention.

[Translation done.]